

Spec-10:100

1340 x 100 imaging array | 20 x 20- μ m pixels



The Princeton Instruments Spec-10:100 utilizes a high-performance, spectroscopic-format CCD designed exclusively for Princeton Instruments. Liquid nitrogen cooling to -120°C minimizes the dark charge, giving the best detection limits possible for long exposures. The 1340 x 100 imaging array is ideal for spectroscopy applications, providing small chip height for fast spectral rates along with 27-mm spectral coverage. This detector delivers much higher resolution and sensitivity than industry-standard "1024 pixel" sensors. Another exclusive feature is the integration of software-selectable amplifiers that offer an easy choice of high sensitivity or high signal-to-noise ratio (SNR).

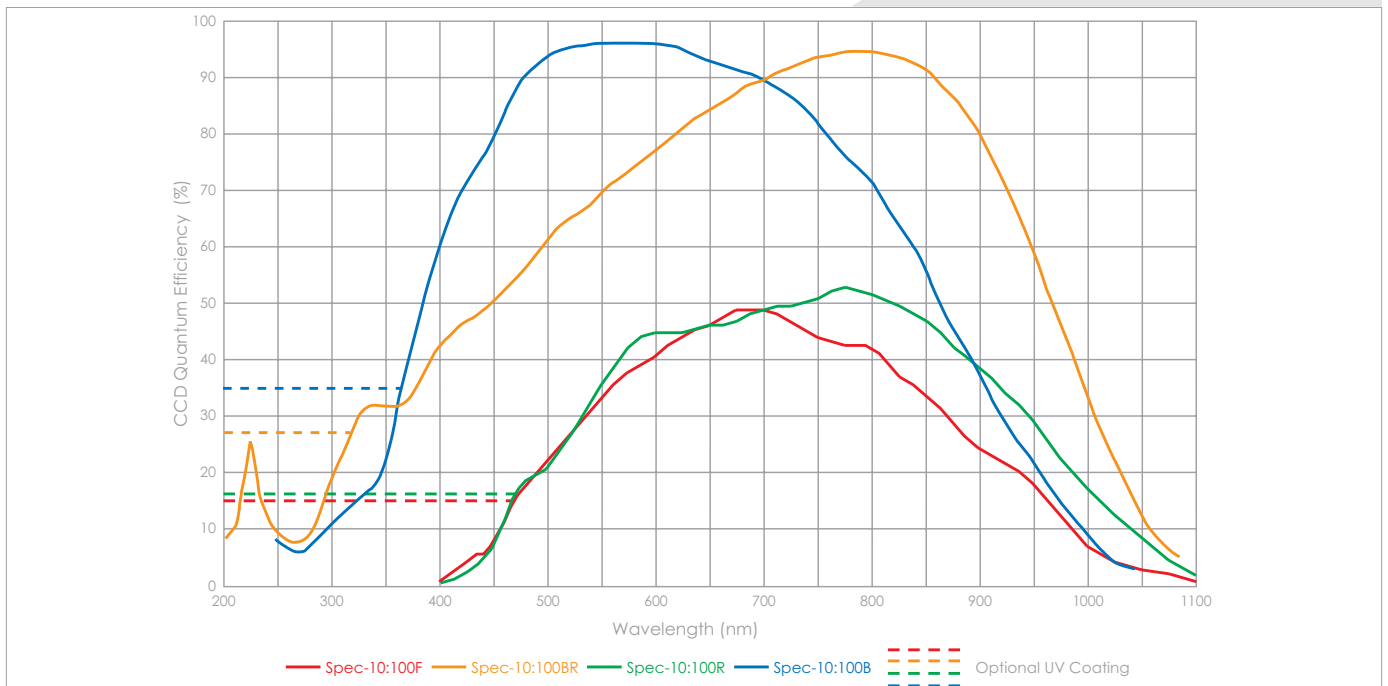
Features	Benefits
Cryogenic cooling	Eliminates noise attributable to dark current, even for long exposure times
1340 x 100 imaging array	Exclusive feature that provides superior resolution over industry-standard "1024 pixel" format
Exclusive CCD architecture	Provides industry's lowest-noise CCD system
20 x 20-μm pixels	Optimum pixel size for full well and high resolution
2-mm chip height	Ideal for rapid spectral acquisition
Software-selectable amplifiers	Exclusive feature provides choice of superior sensitivity or superior SNR
Standard spectrometer interface	Will interface with most spectrometers
Optional dual digitizers	High speed provides fast data acquisition and easy focusing Slow scan provides lowest noise
"USB 2.0 interface" configuration	Seamless, plug-and-play connection to PC notebooks and desktops Easy OEM integration
"PCI interface" configuration	Industry standard for fast data transfer over long distances
WinSpec and PVCAM[®]	Offers easy-yet-sophisticated Windows [®] GUI controls Automates data acquisition, analysis and display
Linux[®] drivers and SITK[™] plug-in for National Instruments' LabVIEW[™]	Extends system utility

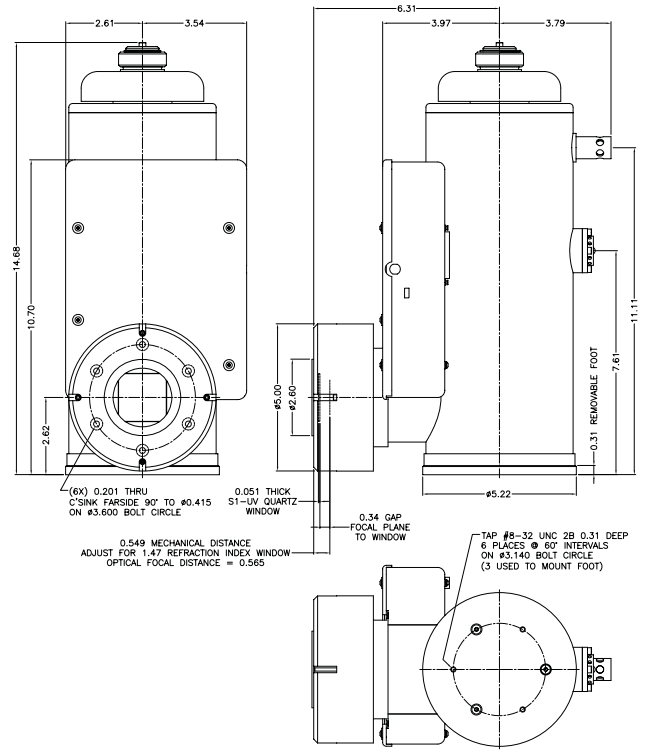
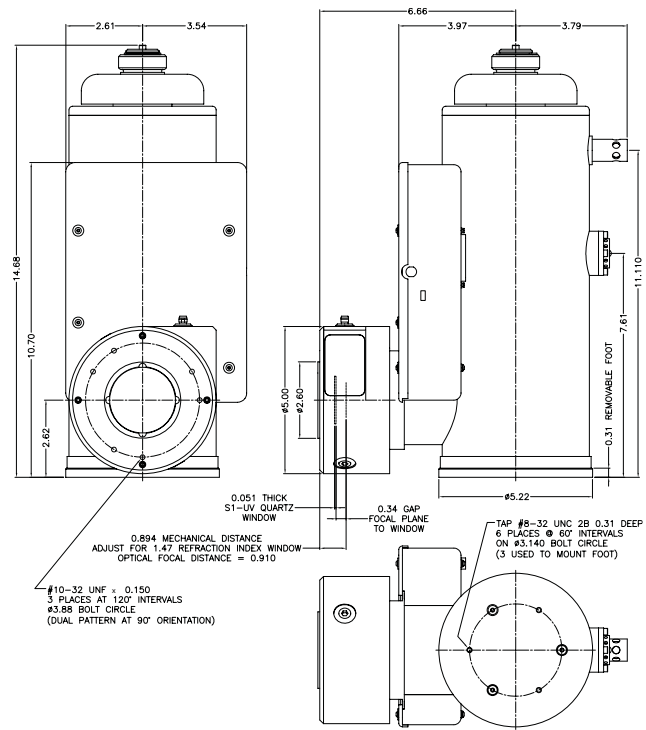
Spec-10:100 Specifications

	Spec-10:100F	Spec-10:100R	Spec-10:100B	Spec-10:100BR
CCD Image Sensor	front-illuminated	front-illuminated; deep depletion	back-illuminated	back-illuminated; deep depletion with anti- etaloning technology
Dark Current LN @ -120°C (e/p/hr)	Typical 0.3 Maximum 1	Typical 1 Maximum 4	Typical 0.3 Maximum 1	Typical 1 Maximum 2.5
	Front-illuminated		Back-illuminated	
	Typical	Maximum	Typical	Maximum
System Read Noise @ 100 kHz readout @ 1 MHz readout @ 2 MHz readout	3 e-rms 6 e-rms 12 e-rms	4 e-rms 8 e-rms 15 e-rms	3.5 e-rms 8 e-rms	5 e-rms 10 e-rms
Vertical shift rate (software selectable)	15 μsec/row			
Spectral rate¹ @ 100 kHz @ 1 MHz @ 2 MHz @ 2 MHz	65 spectra/sec (FVB) 350 spectra/sec (FVB) 450 spectra/sec (FVB) 1000 spectra/sec (1.0 mm high)			
	All Spec-10:100s			
CCD Image Sensor	Princeton Instruments exclusive, scientific grade 1, MPP device, optional UV coatings available			
CCD Format	1340 x 100, 20 x 20 μm pixels, 26.8 x 2.0 mm imaging area			
	Minimum		Typical	
Spectrometric Well Capacity High Sensitivity High Capacity	250 ke- 800 ke-		300 ke- 1 Me-	
Deepest Cooling Temperature LN cooled (LN)	-120°C		-120°C	
Thermostat Precision	±0.05°C across entire temperature range			
Software-selectable gains High Sensitivity High Capacity	High 1 e-/ct 4 e-/ct		Mid 2 e-/ct 8 e-/ct	Low 4 e-/ct 16 e-/ct
Dynamic Range	16 bits			
Nonlinearity @ 100 kHz readout @ 1 MHz readout @ 2 MHz readout	< 1% < 2% < 2%			

Notes: All specifications subject to change.
¹ Typical spectral rates achievable using custom timing modes.

QE Curves





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